Calendar No. 90

110TH CONGRESS *1st Session*	SENATE	REPORT 110–39

OCEAN AND COASTAL EXPLORATION AND NOAA ACT

R E P O R T

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ON

S. 39

MARCH 27, 2007.—Ordered to be printed

U.S. GOVERNMENT PRINTING OFFICE

59–010 WASHINGTON : 2007

SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

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OCEAN AND COASTAL EXPLORATION AND NOAA ACT

MARCH 27, 2007.—Ordered to be printed

Mr. INOUYE, from the Committee on Commerce, Science, and Transportation, submitted the following

REPORT

[To accompany S. 39]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 39) to establish a coordinated national ocean exploration program within the National Oceanic and Atmospheric Administration, and for other purposes, having considered the same, reports favorably thereon with an amendment (in the nature of a substitute) and recommends that the bill (as amended) do pass.

PURPOSE OF THE BILL

The purposes of S. 39, the Ocean and Coastal Exploration and NOAA Act, are to establish a national ocean exploration program, an undersea research program, and a coordinated and comprehensive coastal mapping program within NOAA, and to authorize appropriations for the programs. The main purpose of the programs would be to expand our Nation's understanding of our marine environment through the advancement of coastal and ocean sciences.

BACKGROUND AND NEEDS

Ocean Exploration and Undersea Research

Ocean exploration and research encompasses charting ocean depth and bathymetry and identifying and studying marine organisms. Although ocean exploration has occurred since the 1800s, and advances in deep-sea technologies have made it easier to identify structures at greater ocean depths, only approximately 5 percent of the ocean floor has been explored to date and scientific understanding of undersea environments remains cursory. Current ocean exploration excursions continue to probe uncharted territory

and locate and identify new species and resources, ranging from hydrothermal vents and deep sea corals to shipwrecks and other cultural artifacts. The potential for identifying new and beneficial scientific information and resources in the oceans is significant, but it remains largely untapped. Progress has generally been limited due to the narrow focus and limited financial and other support for ocean exploration in the Federal government. NOAA operates the two primary Federal civilian ocean exploration and research programs.

The National Undersea Research Program (NURP) is a program that has been operated by NOAA for the past 25 years. This program develops and provides technologies that enable scientists to venture underwater, either directly with submersibles and SCUBA, or virtually, using robots and observatories. These capabilities allow the scientific community to gather observations and data from areas in our oceans and Great Lakes that we have not been able to explore before, which helps improve our fundamental understanding of marine and Great Lakes ecosystems. The program consists of a program office, six regional undersea research centers, as well as a science and technology institute.

A broader program of exploration was established more recently. In June 2000, President Clinton charged the Secretary of Commerce with recommending a national strategy for launching a new era of ocean exploration. To develop this strategy, the Secretary, through NOAA, established the President's Panel on Ocean Exploration, which consisted of leading ocean explorers, scientists, and educators. This panel recommended a multidisciplinary, integrated national ocean exploration office with an annual budget of $75 million. In response, NOAA established the Office of Ocean Exploration.

For decades, the ocean science, research, and education communities have called for strengthening Federal ocean exploration and undersea research programs and priorities in order to fill critical scientific knowledge gaps, develop potential economic resources, and inspire greater ocean literacy in the general public.

A 2003 National Research Council (NRC) report and the September, 2004 report to Congress by the United States Commission on Ocean Policy (the Ocean Commission), reiterated these needs. The Commissioners noted that investment in ocean technology and infrastructure, such as modern ships, undersea vehicles, remote sensing satellites, laboratories, and other advanced tools for exploring and understanding the oceans would help facilitate ocean science and improve management of ocean resources. The Commissioners emphasized the importance of three main components of ocean technology and infrastructure in which the United States should increase its investment: land-based facilities, research hardware and equipment, and human technical support. The Ocean Commission report highlighted the need for a strong, comprehensive ocean exploration program, citing the persistent call for a national program from various commissions since the 1970s.

The Ocean Commission considered the Federal government's efforts on ocean exploration to be inadequately funded and not comprehensive enough in scope. Under Recommendation 25–4, the Ocean Commission called for "significant funding" for "an expanded national ocean exploration program," with NOAA and the National

Science Foundation (NSF) serving as the lead agencies, and the United States Geological Survey (USGS) and the United States Navy's Office of Naval Research serving supporting roles. The Commissioner also recommended making outreach and education an integral component of the program. The report recommended an additional $30 million in the first year of implementation, rising to $110 million for annual ongoing costs, including infrastructure for ocean exploration, such as ships and submersibles.

Ocean and Coastal Mapping Integration

The jurisdiction of the United States extends 200 miles beyond its coastline and includes the United States Territorial Sea and Exclusive Economic Zone (EEZ). In the 1980s, the United States undertook an effort to map the newly-recognized EEZ and tasked NOAA and USGS with developing a 10-year exploration plan. Although reconnaissance surveys of much of the EEZ were completed through 1990, more detailed mapping and assessments were not pursued because of budgetary constraints. In fact, nearly ninety percent of this area remains unmapped by modern technologies.

Improved mapping technology is necessary for a number of reasons. The United States marine transportation system is expected to grow exponentially over the next 20 years and current growth is already creating a backlog of priority surveys. According to NOAA's Office of Coast Survey, approximately 35,000 square nautical miles of navigationally significant United States waters have been designated as critical areas requiring updated information on depth and obstructions. Improved mapping of these waters will help to minimize maritime accidents, as well as help support the national security missions of the United States Navy and United States Coast Guard. Mapping of the outer-continental shelf also is needed. Improved data and maps of the resources available on the outer-continental shelf could support the United States in asserting jurisdictional claims to this submarine area upon its accession to the United Nations Convention on Law of the Sea.

At least 10 Federal agencies (including NOAA, the Environmental Protection Agency (EPA), the Minerals Management Service, the United States Army Corps of Engineers, the United States Coast Guard, the United States Fish and Wildlife Service, the NSF, the United States Navy, the Federal Emergency Management Agency, and USGS), in addition to coastal State and local agencies, academic institutions, and private companies share the expensive and time-consuming responsibility of mapping, charting, and assessing living and non-living resources in United States waters. This creates a significant amount of overlap where different parties perform repeated surveys of the same area for different purposes. It also prevents the integration of these surveys since they differ from each other in terms of scale, resolution, projection, and reference frames. To complicate matters further, the coastal zone has the unique issue of the land-sea interface, or shoreline position, which requires seamless joining of onshore topographic maps with offshore bathymetric maps.

The Ocean Commission recommended that many of the existing Federal mapping activities be consolidated and coordinated to increase efficiency and help ensure that all necessary surveys are conducted. The Commission recommended that NOAA, which al-

ready has the responsibility of collecting hydrographic and bathymetric data and creating navigational charts for safe and efficient maritime commerce, be the lead agency in United States ocean and coastal mapping and charting efforts. In addition, the NRC released a study in 2004 entitled "A Geospatial Framework for the Coastal Zone," which details the national need for coastal mapping and charting. The report was requested by NOAA, the USGS, and the EPA. The NRC identified the same problems with the Nation's ocean and coastal mapping efforts, as did the Ocean Commission, and the NRC stated that coordination and communication among Federal agencies and integration of mapping efforts is needed.

SUMMARY OF PROVISIONS

As reported from the Committee, the Ocean and Coastal Exploration and NOAA Act (S. 39) contains three titles. Title I, the NOAA Ocean Exploration Program Act, would address the need for an enhanced and expanded national ocean exploration program by authorizing a national program within NOAA to conduct inter-disciplinary ocean exploration voyages in partnership with other Federal agencies or academic institutions; give priority attention to deep ocean regions; and promote the development of improved oceanographic research, communication, navigation, and data collection systems. It would establish an exploration technology and infrastructure task force among Federal agencies and non-governmental entities to facilitate technology sharing and infrastructure development. It also would authorize interagency financing and increased appropriations of $30.5 million for Fiscal Year (FY) 2008, increasing to $71.9 million for FY 2017.

Title II of the bill, the NOAA Undersea Research Program Act of 2007, would authorize a coordinated national undersea research program at NOAA. The legislation would support two aspects of the current NOAA NURP: (1) harnessing the Nation's extramural, academic expertise to provide solutions to NOAA's undersea challenges, and (2) conducting an open, competitive process for the allocation of advanced underwater technologies, which NOAA specializes in developing, modifying and operating. The goals of this program would be to increase scientific knowledge essential for the management, use, and preservation of marine resources through research, exploration, education, and technology development and to support the undersea science needs of academia. NOAA would lead this program, working with a network of research centers and a national institute. The program would focus on core research and exploration based on national priorities, development of advanced undersea technology to support NOAA missions, science-based education and outreach, and development of natural products from undersea systems. The bill would authorize $12.5 million for regional NURP centers in FY 2008, increasing to $29.5 million for FY 2017, with 50 percent going to the West Coast regional centers and 50 percent going to the East Coast regional centers. The Committee intends for the authorization to be used to sustain all six regional centers. The bill also authorizes $5 million for the National Technology Institute in FY 2008 increasing to $11.8 million in FY 2017.

Title III of the bill, the Ocean and Coastal Mapping Integration Act, would direct NOAA to coordinate a comprehensive Federal ocean and coastal mapping program that enhances conservation

and management of ocean and coastal resources. Through this program, NOAA would conduct the following activities: identify and coordinate Federal shoreline, ocean, and coastal mapping activities, build expertise in mapping technologies, set standards and protocols for testing and transferring new technologies to the private sector, and archive and distribute data and specific data products for the benefit of multiple users. Ocean and coastal mapping activities covered under the bill would include the suite of existing Federal activities: mapping, data processing, data management, and archiving. Mapping activities are intended to include the areas and resources of the outer continental shelf and inshore areas, extending from coastal State waters to the territorial sea and the EEZ, as well as to areas of the outer continental shelf beyond the EEZ.

LEGISLATIVE HISTORY

On January 4, 2007, Senator Stevens introduced S. 39, the Ocean and Coastal Exploration and NOAA Act, a bill to establish a coordinated ocean exploration program within NOAA and for other purposes. The bill, cosponsored by Senators Inouye and Snowe, was referred to the Senate Committee on Commerce, Science, and Transportation. It contained the text of S. 39, as passed the Senate in the 109th Congress.

On February 13, 2007, the Committee considered this bill, along with a substitute amendment offered by Senator Stevens, which added Title III, the Ocean and Coastal Mapping Integration Act, to the bill. The text of Title III is the same legislation contained in S. 364, reported by the Committee in the 109th Congress. The substitute also included an amendment offered by Senator Hutchison, which provided that NURP would study ocean and coastal resources. At the Executive Session, the Commerce Committee approved the Stevens substitute and Hutchison amendment by voice vote and ordered S. 39 to be reported favorably as amended.

ESTIMATED COSTS

In accordance with paragraph 11(a) of rule XXVI of the Standing Rules of the Senate and section 403 of the Congressional Budget Act of 1974, the Committee provides the following cost estimate, prepared by the Congressional Budget Office:

U.S. CONGRESS,
CONGRESSIONAL BUDGET OFFICE,
Washington, DC, March 23, 2007.

Hon. DANIEL K. INOUYE,
Chairman, Committee on Commerce, Science, and Transportation, U.S. Senate, Washington, DC.

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the enclosed cost estimate for S. 39, the Ocean and Costal Exploration and NOAA Act (OCEAN Act).

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Deborah Reis.

Sincerely,

PETER R. ORSZAG.

Enclosure.

S. 39—Ocean and Costal Exploration and NOAA Act (OCEAN Act)

Summary: S. 39 would direct the National Oceanic and Atmospheric Administration (NOAA) to establish and coordinate national programs for ocean exploration, undersea research, and ocean and coastal mapping. In carrying out those programs, NOAA would be authorized to coordinate scientific voyages with other federal agencies or institutions and to conduct public education and outreach programs. The bill also would establish an interagency committee on ocean and coastal mapping. For those activities, the bill would authorize appropriations totaling about $700 million over the 2008–2012 period and nearly $1.5 billion over the 2008–2017 period.

Assumming appropriation of the authorized amounts, CBO estimates that implementing S. 39 would cost about $40 million in fiscal year 2008 and $540 million over the 2008–2012 period. We estimate that more than $900 million would be spent after 2012, including nearly $760 million authorized to be appropriated between 2012 and 2017. Enacting S. 39 would have no impact on revenues or direct spending.

S. 39 contains on intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA) and would impose no costs on state, local, or tribal governments.

Estimated cost to the Federal Government: The estimated budgetary impact of S. 39 is shown in the following table. The costs of this legislation fall within budget function 300 (natural resources in environment).

	By fiscal year, in millions of dollars—				
	2008	2009	2010	2011	2012
CHANGES IN SPENDING SUBJECT TO APPROPRIATION					
Authorization Level [1]	119	130	140	153	165
Estimated Outlays	40	80	130	140	150

[1] NOAA's National Ocean Service received appropriations of around $600 million in 2007, including funding for some activities that are similar to the exploration, research, and mapping programs that would be authorized by this bill. In addition to the amounts shown in the table, S. 39 also would authorize funding over the 2013–2017 period. In total, the bill would authorize appropriations of nearly $1.5 billion over the 2008–2017 (10-year) period.

Basis of estimate: For this estimate, CBO assumes that the entire amounts authorized by the bill will be appropriated for each fiscal year. Outlays have been estimated on the basis of historical spending patterns for NOAA programs.

The authorization levels in the table are as specified in the bill for fiscal years 2008 through 2012, including:

- Between $31 million and $45 million a year for ocean exploration,
- Between $18 million and $25 million a year for undersea research and technology programs, including between $5 million and $7 million annually for a national technology institute,
- Between $20 million and $45 million a year for coastal and ocean mapping, and
- $10 million a year for each of the five federal departments or agencies (the Department of Defense, Department of Homeland Security, Department of the Interior, the National Aero-

nautics and Space Administration, and the Environmental Protection Agency) for participating in an interagency committee on ocean and coastal mapping.

S. 39 also would authorize appropriations for ocean exploration and research and technology programs for each of fiscal years 2012 and 2017. The bill would authorize appropriations for coastal and ocean mapping, including the interagency committee, through 2015.

Intergovernmental and private-sector impact: S. 39 contains no intergovernmental or private-sector mandates as defined in UMRA and would impose no costs on state, local, or tribal governments.

Estimated prepared by: Federal costs: Deborah Reis. Impact on state, local, and tribal governments: Lisa Ramirez-Branum. Impact on the private sector: Craig Cammarata.

Estimate approved by: Peter H. Fontaine, Deputy Assistant Director for Budget Analysis.

REGULATORY IMPACT STATEMENT

In accordance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following evaluation of the regulatory impact of the legislation, as reported:

NUMBER OF PERSONS COVERED

The reported bill would establish a national ocean exploration program and a national undersea research program within NOAA. The reported bill also would direct NOAA to coordinate a comprehensive Federal ocean and coastal mapping program that enhances conservation and management of ocean and coastal resources. It does not authorize any new regulations and therefore will not subject any individuals or businesses to new regulations.

PRIVACY

This legislation would not have any adverse impact on the personal privacy of the individuals that will be impacted by this legislation.

PAPERWORK

The reported bill would not increase paperwork requirements for the private sector. Those non-governmental partners that are interested in working with the Ocean Technology and Infrastructure Task Force in section 104 and the Interagency Committee on Ocean and Coastal Mapping established in section 303 likely would increase their communications, data management, and technical expertise capacity related to ocean mapping.

SECTION-BY-SECTION ANALYSIS

TITLE I—NATIONAL OCEAN EXPLORATION PROGRAM

Section 101. Short title

Section 101 cites this title as the "National Ocean Exploration Program Act."

Section 102. Establishment

Section 102 would establish a "coordinated national ocean exploration program" within NOAA done in consultation with NSF and other Federal agencies.

Section 103. Authorities

Section 103 would provide specific authorities for the NOAA Administrator to carry out the program. These authorities include conducting inter-disciplinary ocean exploration voyages in partnership with other Federal agencies or academic institutions, giving priority attention to deep ocean regions, and promoting the development of improved oceanographic research, communication, navigation, and data collection systems.

Section 104. Exploration Technology and Infrastructure Task Force

Section 104 would require that NOAA, in coordination with NASA, USGS, the Office of Naval Research, and other relevant governmental and non-governmental institutions organize an "Ocean Technology and Infrastructure Task Force." This task force would facilitate the transfer of new exploration technology to the program, improve the availability of communications infrastructure to the program, develop an integrated information processing system, conduct public outreach activities on ocean sciences, and encourage cost-sharing partnerships.

Section 105. Interagency financing

Section 105 would authorize NOAA, NSF, and other Federal agencies involved in the program to perform interagency financing, share, transfer, receive and spend funds appropriated to any Federal participant in the program.

Section 106. Authorization of appropriations

Section 106 would authorize to be appropriated to NOAA $30.5 million for FY 2008, increasing to $71.9 million for FY 2017.

TITLE II—UNDERSEA RESEARCH PROGRAM

Section 201. Short title

Section 201 cites this title as the "NOAA Undersea Research Program Act of 2007."

Section 202. Establishment

Section 202 would establish an undersea research program in NOAA and directs the Administrator of NOAA to designate a director for the program.

Section 203. Purpose

Section 203 states that the purpose of the program would be to increase scientific knowledge essential for the management, use, and preservation of marine resources through research, exploration, education, and technology development. The program also would make available the infrastructure and expertise necessary to service the undersea science needs of the academic community.

Section 204. Program

Section 204 would require NOAA to conduct the program through a national headquarters or network of undersea research centers, and a national technology institute. The program director would oversee the direction of the program as well as take advice from the directors of the regional centers on the west and east coast and the National Technology Institute.

Section 205. Regional centers and technology institute

Section 205 would require undersea research programs to focus on core research and exploration based on national and regional priorities and advance undersea technology to support NOAA missions. It would also require the development of advanced technology associated with seafloor observatories, remotely operated vehicles, and new sampling and sensing technologies.

Section 206. Competitiveness

Section 206 would require that external projects supported by the regional centers be managed using an open and competitive process evaluating scientific merit, relevance to NOAA, research goals, and technical feasibility, except for 10 percent of the funds for NOAA rapid response activities.

Section 207. Authorization of appropriations

Section 207 would authorize the following appropriations to NOAA: for regional centers, $12.5 million in FY 2008 increasing to $29.5 million for FY 2017, with 50 percent going to the West Coast Regional Centers and 50 percent going to the East Coast Regional Centers; for the National Technology Institute, $5 million in FY 2008 increasing to $11.8 million in FY 2017.

TITLE III—INTEGRATED OCEAN AND COASTAL MAPPING PROGRAM

Section 301. Short title

Section 301 cites this title as the "Ocean and Coastal Mapping Integration Act."

Section 302. Integrated Ocean and Coastal Mapping Program

Subsection (a) would direct the Administrator of NOAA to develop, in coordination with the Interagency Committee on Ocean and Coastal Mapping, a coordinated and comprehensive Federal ocean and coastal mapping program that enhances the conservation and management of coastal and ocean resources.

Subsection (b) would direct NOAA, working with the Interagency Committee, to conduct the following activities in developing the program, including: identify and coordinate Federal shoreline, ocean, and coastal mapping activities, build expertise in mapping technologies, set standards and protocols for testing and transferring new technologies among the Federal government, academia, and the private sector, and archive and distribute data and specific data products for the benefit of multiple users.

Section 303. Interagency Committee on Ocean and Coastal Mapping

Subsection (a) would establish an Interagency Committee on Ocean and Coastal Mapping.

Subsection (b) would require that the Interagency Committee be comprised of high-ranking officials from Federal agencies engaged in coastal or ocean mapping.

Subsection (c) provides that the NOAA representative would chair the committee.

Subsection (d) would require the Committee to meet on a quarterly basis, but permit Subcommittee or working group meetings to meet as often as needed.

Section 304. NOAA Integrated Mapping Initiative

Subsection (a) would require the Administrator of NOAA, working in consultation with the Interagency Committee on Ocean and Coastal Mapping, to submit a plan to Congress setting forth a NOAA Integrated Mapping Initiative. The plan would be due six months from the date of enactment.

Subsection (b) would require the NOAA plan to include: a description of all NOAA mapping programs, geographic priorities and metadata standards for those programs, a section on existing and emerging technology, resource requirements for the integrated mapping initiative, the designation of centers or repositories within NOAA for managing data collection, processing, archiving, and distribution, and a timetable for implementation of the plan.

Subsection (c) would authorize NOAA to operate and maintain up to three joint hydrographic centers, which shall be co-located with colleges or universities. The centers would serve as hydrographic centers of excellence and carry out research and development of new technologies, mapping of the United States outer continental shelf, certain types of data processing, testing of new applications for remote sensing technologies, and graduate education programs in the hydrographic sciences for NOAA Commissioned Officer Corps and civilian personnel.

Section 305. Interagency program reporting

Section 305 would require the Interagency Committee on Ocean and Coastal Mapping to submit a report to Congress within 18 months after enactment of the Act. Through this report, the Committee would: (1) inventory Federal ocean and coastal survey data within the territorial seas and EEZ, (2) identify priority areas in need of re-surveying with present technologies, (3) include a resource plan that identifies when priority areas in need of modern surveys can be accomplished, (4) describe the status of efforts to produce integrated digital maps of coastal and ocean areas, (5) describe products resulting from coordinated mapping efforts that improve public understanding of the oceans and coasts, (6) document minimum and desired standards for data acquisition and metadata, (7) describe the status of Federal efforts to leverage mapping technologies, share expertise, coordinate mapping activities, and exchange data, (8) provide resource and technology requirements for carrying out the goals of the program, (9) describe efforts to declassify data gathered by the Department of Defense, and (10) provide a resource plan for a digital coast integrated mapping pilot project in the northern Gulf of Mexico that would involve the leveraging of public and private mapping data and resources.

Section 306. Authorization of appropriations

Section (a) would authorize, in addition to amounts authorized under the Hydrographic Services Improvement Act of 1998, appropriations to NOAA to carry out the purposes of the Act. Appropriations would be authorized in increments, beginning with $20 million in FY 2008 and ending with $45 million for each of FY 2012–2015.

Section (b) would provide that, of the amounts authorized under subsection (a), the portion to be authorized for the joint hydrographic centers described in Section 4 (c) is $10 million in FY 2008, increasing by $1 million per fiscal year to $15 million for each of FY 2012–2015.

Section (c) authorizes the Department of Defense, Department of the Interior, Department of Homeland Security, the EPA, and the National Aeronautics and Space Administration to each use up to $10 million per fiscal year to carry out interagency activities covered under section 303.

Section 307. Definitions

Section 307 would define key terms applicable to the bill including, "Exclusive Economic Zone" and "Ocean and Coastal Mapping."

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the Committee states that the bill as reported would make no change to existing law.

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